IN THE CLAIMS:

Please amend claims 4, 14, and 34 and cancel claims 1, 11, and 23, without prejudice or disclaimer, as follows.

1. Cancelled

2. (Previously Presented) The method according to claim 3, wherein the root channelization code is the root physical downlink shared channel code.

3. (Previously Presented) A method for providing enhanced utilization of code resource in a cellular systems, comprising terrestrial cellular code division multiple access systems, wherein a base station comprises an antenna system which generates several beams, the method comprising:

using a spreading factor (SF) of the root channelization code to set an upper limit on the maximum bit rate; and

selecting the spreading factor of the root channelization code according to the set of minimum spreading factors assumed for the different beams, wherein in a case where the channels under a same scrambling code, but different beams, share the same root channelization code, a minimum assumed spreading factor for beam number m (SF_{min}[m]) is defined according to the following equation:

$$SF_{DSCHroot} = f(\{SF_{\min}[m]\}_{m \in SC}),$$

where $SF_{DSCHroot}$ is the minimum assumed spreading factor of the root channelization code of a down link shared channel (DSCH), $\{SF_{min}[m]\}_{m \in SC}$ is the set of assumed minimum SFs for the beams transmitted under the same scrambling code, where the set SC contains the beam numbers which are transmitted under the same scrambling code.

4. (Currently Amended) A method for providing enhanced utilization of code resource in a cellular systems, comprising terrestrial cellular code division multiple access systems, wherein a base station comprises an antenna system which generates several beams, the method comprising:

using a spreading factor (SF) of the root channelization code to set an upper limit on the maximum bit rate; and

selecting the spreading factor of the root channelization code according to the set of minimum spreading factors assumed for the different beams, wherein $SF_{DSCHroot}$ is calculated according to the equation

$$SF_{DSCHroot} = f(\{SF_{\min}[m]\}_{m\in SC})$$
$$= Min\{\{SF_{\min}[m]\}_{m\in SC}\}/Q$$

with $Q=2^n$, where n is a positive integer, $n\in[0,1,2,3....]$. where $\{SF_{min}[m]\}_{m\in SC}$ is the set of assumed minimum SFs for the beams transmitted under the same scrambling code. where the set SC contains the beam numbers which are transmitted under the same scrambling code and Q is a positive integer.

5. (Previously Presented) The method according to claim 4, wherein Q equals or is smaller than the number of beams sharing the same root physical downlink shared channel code, the beam with the minimum assumed spreading factor being configured to transmit at the maximum allowed bit rate, while the other channels under different beams but same scrambling code are active at lower bit rates.

6. (Previously Presented) The method according to claim 3, wherein the function *f*() is selected in such a manner that simultaneous transmission in all the beams under the same scrambling code is possible with the minimum assumed spreading factor.

7. (Previously Presented) The method according to claim 3, wherein packet scheduling for parallel beams is provided in such a manner that not all beams transmit on

downlink comprising the physical downlink shared channel, with high or maximum bit rates (low spreading factor) simultaneously.

8. (Previously Presented) The method according to claim 7, wherein packet scheduling in the individual beams is coordinated so that only one of the beams is transmitting with a high bit rate during the same time period, and different time periods comprising scheduling slots, are balanced so they require nearly the same amount of code resources.

9. (Previously Presented) The method according to claim 7, wherein the packet scheduling is based on quality-of-service (QoS) so that packets are prioritized according to QoS attributes.

10. (Previously Presented) The method according to claim 3, wherein the selection of the spreading factor, and/or packet scheduling is being applied to the downlink, comprising physical downlink shared channel, or to high speed downlink packet access.

11. Cancelled

12. (Previously Presented) The system according to claim 13, wherein the root channelization code is the root physical downlink shared channel code.

13. (Previously Presented) A system for providing enhanced utilization of code resource in cellular systems, comprising a terrestrial cellular code division multiple access systems, the system comprising:

a base station having an antenna system configured to generate several beams, wherein a spreading factor (SF) of the root channelization code sets an upper limit on the maximum bit rate; and

a selecting unit configured to select the spreading factor of the root channelization code according to the set of minimum spreading factors assumed for the different beams, wherein in a case where the channels under a same scrambling code, but different beams, share the same root channelization code, the selection unit is configured to select a minimum assumed spreading factor, a minimum assumed spreading factor for beam number m (SF_{min}[m]) being defined according to the following equation:

$$SF_{DSCHroot} = f\left(\{SF_{\min}[m]\}_{m\in SC}\right),$$

where $SF_{DSCHroot}$ is the minimum assumed spreading factor of the root channelization code of a down link shared channel (DSCH), $\{SF_{min}[m]\}_{m\in SC}$ is the set of assumed minimum SFs for the beams transmitted under the same scrambling code, where

the set SC contains the beam numbers which are transmitted under the same scrambling code.

14. (Currently Amended) A system for providing enhanced utilization of code resource in cellular systems, comprising a terrestrial cellular code division multiple access systems, the system comprising:

a base station having an antenna system configured to generate several beams, wherein a spreading factor (SF) of the root channelization code sets an upper limit on the maximum bit rate; and

a selecting unit configured to select the spreading factor of the root channelization code according to the set of minimum spreading factors assumed for the different beams, comprising calculating means for calculating $SF_{DSCHroot}$ according to the equation

$$SF_{DSCHroot} = f(\{SF_{\min}[m]\}_{m\in SC}) = Min\{\{SF_{\min}[m]\}_{m\in SC}\}/Q$$

with $Q=2^n$, where n is a positive integer, $n\in[0,1,2,3....]$, where $\{SF_{min}[m]\}_{m\in SC}$ is the set of assumed minimum SFs for the beams transmitted under the same scrambling code, where the set SC contains the beam numbers which are transmitted under the same scrambling code and Q is a positive integer.

15. (Previously Presented) The system according to claim 14, wherein Q equals or is smaller than the number of beams sharing the same root physical downlink shared channel code, the beam with the minimum assumed SF being allowed to transmit at the maximum allowed bit rate, while the other channels under different beams but same scrambling code can be active at lower bit rates.

16. (Previously Presented) The system according to claim 13, wherein the function $f()$ is selected in such a manner that simultaneous transmission in all the beams under the same scrambling code is possible with the minimum assumed spreading factor.

17. (Previously Presented) The system according to claim 13, further comprising:

a packet scheduler configured to provide packet scheduling for parallel beams in such a manner that less than all beams are allowed to transmit on the downlink comprising the physical downlink shared channel with high bit rates (low spreading factor) simultaneously.

18. (Previously Presented) The system according to claim 17, wherein the packet scheduler is configured to coordinate packet scheduling in the individual beams so that only one of the beams is transmitting with a high bit rate during the same time period, and different time periods comprising scheduling slots, are balanced so they require nearly the same amount of code resources.

19. (Previously Presented) The system according to claim 17, wherein the packet scheduler is configured to base packet scheduling on quality-of-service (QoS) so that packet are prioritized according to QoS attributes.

20. (Previously Presented) The system according to claim 13, wherein the system is adapted to apply the selection of the Spreading Factor, and/or packet scheduling to the downlink, preferably the physical downlink shared channel, or to high speed downlink packet access.

21. (Previously Presented) A network element to be used in a system for providing enhanced utilization of code resource in a cellular system, said network element comprising:

a selecting unit configured to select a spreading factor of a root channelization code according to a set of minimum spreading factors assumed for different beams, wherein in a case where the channels under a same scrambling code, but different beams, share the same root channelization code, a minimum assumed spreading factor for beam number m (SF_{min}[m]) is defined according to the following equation:

$$SF_{DSCHroot} = f\left(\left\{SF_{\min}[m]\right\}_{m\in SC}\right),$$

where $SF_{DSCHroot}$ is the minimum assumed spreading factor of the root channelization code of a down link shared channel (DSCH), $\{SF_{min}[m]\}_{m\in SC}$ is the set of assumed minimum SFs for the beams transmitted under the same scrambling code, where the set SC contains the beam numbers which are transmitted under the same scrambling code.

22. (Previously Presented) Network element as defined in claim 21, further comprising:

a packet scheduler configured to provide packet scheduling for parallel beams in such a manner that less than all beams are allowed to transmit on the downlink comprising the physical downlink shared channel with high bit rates (low spreading factor) simultaneously.

23. Cancelled

24. (Previously Presented) The method according to claim 4, wherein the root channelization code is the root physical downlink shared channel code.

25. (Previously Presented) The method according to claim 4, wherein packet scheduling for parallel beams is provided in such a manner that not all beams transmit on downlink comprising the physical downlink shared channel, with high or maximum bit rates (low spreading factor) simultaneously.

26. (Previously Presented) The method according to claim 25, wherein packet scheduling in the individual beams is coordinated so that only one of the beams is transmitting with a high bit rate during the same time period, and different time periods comprising scheduling slots, are balanced so they require nearly the same amount of code resources.

27. (Previously Presented) The method according to claim 25, wherein the packet scheduling is based on quality-of-service (QoS) so that packets are prioritized according to QoS attributes.

28. (Previously Presented) The method according to claim 4, wherein the selection of the spreading factor, and/or packet scheduling is being applied to the downlink, comprising physical downlink shared channel, or to high speed downlink packet access.

29. (Previously Presented) The system according to claim 14, wherein the root channelization code is the root physical downlink shared channel code.

30. (Previously Presented) The system according to claim 14, further comprising:

a packet scheduler configured to provide packet scheduling for parallel beams in such a manner that less than all beams are allowed to transmit on the downlink comprising the physical downlink shared channel with high bit rates (low spreading factor) simultaneously.

31. (Previously Presented) The system according to claim 30, wherein the packet scheduler is configured to coordinate packet scheduling in the individual beams so that only one of the beams is transmitting with a high bit rate during the same time period, and different time periods comprising scheduling slots, are balanced so they require nearly the same amount of code resources.

32. (Previously Presented) The system according to claim 30, wherein the packet scheduler is configured to base packet scheduling on quality-of-service (QoS) so that packet are prioritized according to QoS attributes.

33. (Previously Presented) The system according to claim 14, wherein the system is adapted to apply the selection of the Spreading Factor, and/or packet scheduling

to the downlink, preferably the physical downlink shared channel, or to high speed downlink packet access.

34. (Currently Amended) A network element to be used in a system for providing enhanced utilization of code resource in a cellular system, said network element comprising:

a selecting unit configured to select a spreading factor of a root channelization code according to a set of minimum spreading factors assumed for different beams, wherein $SF_{DSCHroot}$ is calculated according to the equation

$$SF_{DSCHroot} = f(\{SF_{\min}[m]\}_{m\in SC}) = Min\{\{SF_{\min}[m]\}_{m\in SC}\}/Q,$$

with $Q=2^n$, where n is a positive integer, $n\in[0,1,2,3....]$, where $\{SF_{min}[m]\}_{m\in SC}$ is the set of assumed minimum SFs for the beams transmitted under the same scrambling code, where the set SC contains the beam numbers which are transmitted under the same scrambling code and Q is a positive integer.

35. (Previously Presented) Network element as defined in claim 34, further comprising:

a packet scheduler configured to provide packet scheduling for parallel beams in such a manner that less than all beams are allowed to transmit on the downlink comprising the physical downlink shared channel with high bit rates (low spreading factor) simultaneously.